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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/960,422	09/21/2001	Teemu Kaiponen	297-010484-US(PAR)	5561
2512	7590	11/21/2005	EXAMINER	
PERMAN & GREEN 425 POST ROAD FAIRFIELD, CT 06824			GELIN, JEAN ALLAND	
			ART UNIT	PAPER NUMBER
			2688	

DATE MAILED: 11/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/960,422

Applicant(s)

KAIPONEN ET AL.

Examiner

Jean A. Gelin

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This Office action is in response to the Request For Continued Examination (RCE) filed on October 27, 2005 in which claims 1 and 12 have been amended. Claims 1-6 and 8-17 are currently amended.

### ***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 208a, 212, 242 in fig. 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 1-6 and 8-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 and 12, line 10, the phrase "which third area includes a number of components on a surface of the printed wire board" is unclear because no third area has been recited above. The Examiner would like to know whether the claims contains a first "third area" and second "third area"

Furthermore, the claims call for "a printed wired board is parallel to said ground plane and said radiator element" in contrast a printed wired board is attached to said ground plane and said radiator element. This is not clear to the Examiner.

It is not clear to the Examiner how the ground plane and radiator element which are parallel to the printed wired board are covered a first area and second area of the printed circuit board. Furthermore, the first, second, and third areas are not shown on the drawing. Appropriate correction is required.

The claims would be interpreted and rejected in view of the 112 rejection above.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-6 and 8-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (US PAT. 5,945,954) in view of Akiba et al. (US PAT. 5,491,301) and Levi (US PAT. 6,121,931).

Regarding claim 1, Johnson discloses a planar antenna (10, figure 5) for use in a portable communication device, i.e., a mobile station (12, figure 3), comprising a planar antenna including a ground plane (23, figure 4b) and a planar radiator element (20, figure 4b), which is disposed substantially parallel to the ground plane with a space (24, figure 4b) there between, and the portable communication device including a printed wired board, i.e., an inherent ground plane of the mobile station, which is located substantially parallel to the ground plane and the radiator element, wherein the ground plane covers a first area of the printed wired board and the radiator element covers a second area on the printed wired board (abstract and col. 3 line 28 through col. 4 line 45).

Johnson differs from the claimed invention in not specifically teaching the antenna assembly comprising a layer of low reluctance material, which layer is

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substantially parallel to the printed wired board and covers a third area on the printed wired board, which third area includes a number of components on a surface of the printed wire board and the layer of low reluctance material is so located that the third area on the printed wired board is at least in part outside the first and second areas on the print wired board.

However, Akiba teaches a shielding technique to utilize a sheet-like wave absorber, i.e., a layer of low reluctance material, in the vicinity of the interlayer connection portion in a circuit board for reducing electromagnetic radiation noise within the circuit board (figure 1 and col. 5 line 21 through col. 6 line 54). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Johnson in having the layer of low reluctance material, which layer is substantially parallel to the printed wired board and covers a third area on the printed wired board, and the layer of low reluctance material is so located that the third area on the printed wired board is at least in part outside the first and second area on the print wired board, as per teaching of Akiba, in order to reduce electromagnetic radiation noise within the circuit board.

Furthermore, neither Johnson nor Akiba specifically teaches that the space between the radiator element and the ground plane is substantially air, thus forming an air gap.

However, Levi teaches to utilize an air gap applied to edges of separated layers instead of a dielectric substrate to separate between different layers in a planar antenna assembly, thereby maintaining their separation (col. 7 line 63 through col. 8 line 5).

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Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of Johnson and Akiba in having the space between the radiator element and the ground plane being substantially air, thus forming the air gap, as per teaching of Levi, in order to maintain the separation.

Regarding claim 2, Akiba discloses the low reluctance covering a high intensity RF current area on the printed wired board for reducing the RF current intensity on the area (col. 7 lines 27-65).

Regarding claim 3, Akiba discloses the low reluctance material as the sheet-like absorber made of ferromagnetic material for reducing electromagnetic radiation noise in the vicinity of the interlayer connection portion in the circuit board (col. 6 lines 38-46) so that the low reluctance material is a flexible ferrite sheet).

Regarding claim 4, Johnson discloses the mobile station including a display unit (figure 3).

Regarding claim 5, it is old and notoriously well known in the art of a display unit comprising a light guide for make user friendly so that one skill in the art would recognize to attach the layer of low reluctance material to the light guide in order to improve antenna efficiency (col. 2 lines 1 1-15).

Regarding claim 6, Akiba discloses the low reluctance material being attached to the ground plane (fig. 1 and col. 6 lines 22-46).

Regarding claims 8-9, Johnson discloses the ground plane being formed of a conductive layer of the printed wired board, which is nearest to the radiator element (col. 4 lines 26-33).

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Regarding claim 10, Johnson discloses the planar antenna being located at the end of the printed wired board (fig. 1), and Akiba to place the low reluctance material in the vicinity of the interlayer connection portion in the circuit board (col. 6 lines 38-46) so that one skill in the art would recognize to located the low reluctance material at a distance from the end of the printed wire board.

Regarding claim 11, Johnson teach to incorporate the planar antenna for portable communication device (abstract) so that one skill in the art would recognize the printed wired board to connect the planar antenna to other electronics of the portable communication device.

Regarding claim 12, the limitations of the claim are rejected as the same reasons set forth in claim 1.

Regarding claim 13, the limitations of the claim m'e rejected as the same reasons set forth in claim 2.

Regarding claim 14, the limitations of the claim are rejected as the same reasons set forth in claim 3.

Regarding claim 15, the limitations of the claim are rejected as the same reasons set forth in claim 5.

Regarding claim 16, the limitations of the claim are rejected as the same reasons set forth in claim 10.

Regarding claim 17, the limitations of the claim are rejected as the same reuons set forth in claim 11.

***Response to Arguments***



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7. Applicant's arguments filed 10/12/05 have been fully considered but they are not persuasive.

The Applicant argues Akiba teaches a sheet-like absorber made of low reluctance material. But, Akiba only suggests using such an absorber in the vicinity of the interlayer connection. However, the core of the invention is the arrangement of the components and the use of low reluctant material. Given that the arrangement is not clear and the use of low reluctant material is well known as admitted by the Applicant. The claims is interpreted and rejected as best understood by the Examiner in view of 112 rejection and 103 rejections recited above.

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean A. Gelin whose telephone number is (571) 272-7842. The examiner can normally be reached on 9:30 AM to 7:00 PM.

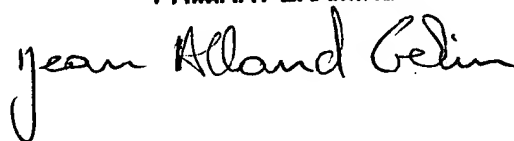
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on (571) 272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**JEAN GELIN**  
**PRIMARY EXAMINER**

JGelin  
November 11, 2005

A handwritten signature in cursive script that reads "jean Allard Gelin". The signature is written in black ink and is positioned below the printed name and title.